



NASA, Exploring Sustainability for Life

Panel Presentation

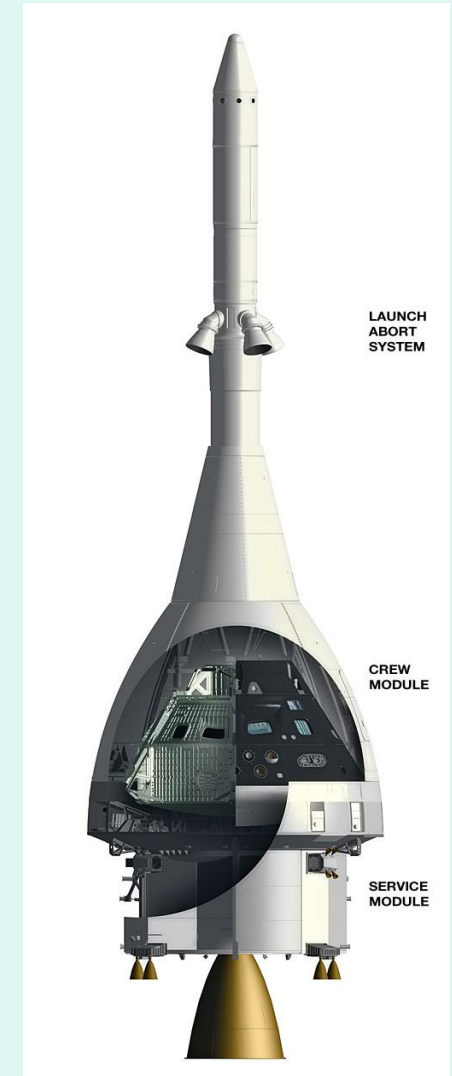
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Outline

- Background and Challenges
- Sustainability Principles
- Sustainability Requirements
- Current Scorecard
- Strategic Life Cycle Management





Background

*NASA is about inspiring people
to seek out answers to questions
concerning
the universe and our world*



U. S. National Space Policy Goals



- Energize competitive domestic industries
- Expand international cooperation
- Strengthen stability in space
- Increase assurance and resilience of mission-essential functions
- Pursue human and robotic initiatives
- Improve space-based Earth and solar observation

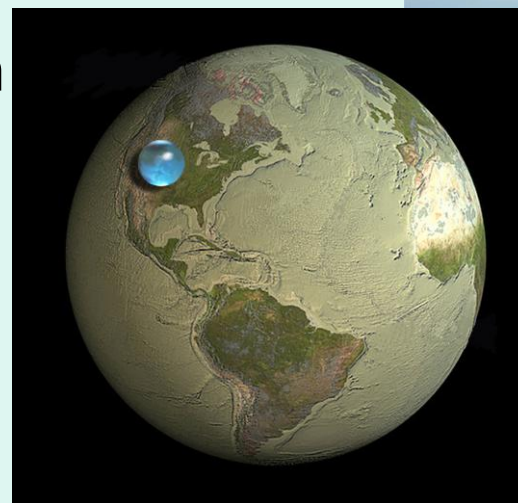


"NASA has a key role in achieving the goals defined in the new policy. We are committed to working with other agencies, industry, and international partners to achieve national goals in exploration - human and robotic - and technology development that will ensure a robust future for the U.S. and our friends around the world." NASA Administrator Charles Bolden, June 28, 2010



Global Challenges

- **Energy supply and Resilience**
- **Environmental Risks to Mission**
 - Air Contamination and Green House Gases
 - Toxic Material Usage
 - Climate Change
 - Natural Resource System Degradation
- **Health and Welfare**
- **Water Resource Quality and Availability**
- **International Security**
- **Economic Wellbeing**





Sustainability Principles

NASA Draft Principles of Sustainability:

Principle 1: Maximize effectiveness of space systems and supporting assets, supply chain and logistics security, and sustainment of earth support system capability.

Principle 2: Increase resilience of earth-based space support systems through terrestrial threat analysis, increased resource efficiency and security, and adaptation and risk mitigation planning and execution.

Principle 3: Reduce risk to mission from supply chain, economic, social, ecological factors and other terrestrial factors through life-cycle management of space systems, assets and materials.

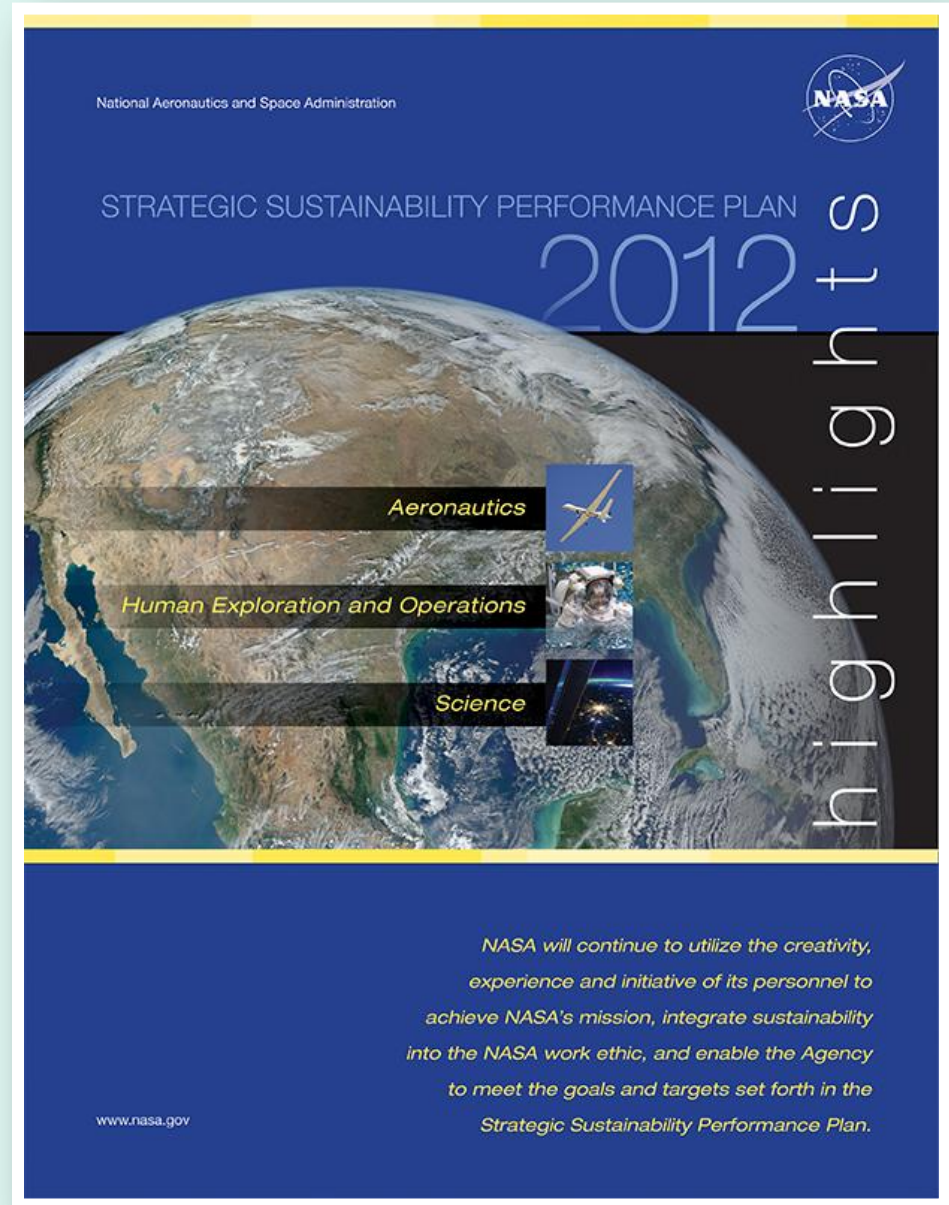
Principle 4: Optimize Mission contribution to human health, environmental stewardship and economic and social equity.



Sustainability Requirements



Executive Order 13514:

Federal Leadership in Environmental, Energy and Economic Performance





Sustainability Scorecard

Executive Order 13514 Federal Leadership in Environmental, Energy, and Economic Performance		
	GOALS	STATUS
EO 13514	 Greenhouse Gases GOAL: Reduce Scope 1 & 2 GHG emissions by 18.3% by FY 2020, from a 2008 baseline; Reduce Scope 3 emissions by 12.6% by 2020 from the 2008 baseline	
	 Fleet Petroleum Use GOAL: Reduce by 2% annually compared to 2005 baseline	
	 Water Use GOAL: Reduce potable intensity (gallons/sq ft) by 2% each year, compared to 2005; reduce use for industrial, landscaping, and agricultural by 2% each year, compared to 2010	
	 Waste GOAL: Reduce 50% of trash generated; reduce 50% of construction and demolition debris	
	 Green Buildings GOAL: Starting by 2020, all new planned buildings must be designed to achieve zero-net energy by 2030. By 2015, 15% of existing buildings must meet Guiding Principles for High-Performance Buildings	
	 Acquisition GOAL: 95% of new products and services are Energy Star or Federal Energy Management Program (FEMP)-designated	
	 Electronic Stewardship GOAL: Procure energy-efficient equipment; implement best practices for energy-efficient services and data centers.	
Other important actions for Federal Agencies: <ul style="list-style-type: none">• Designate an Agency Sustainability Officer responsible for achieving EO 13514 provisions• Participate in Interagency Climate Change Adaptation Task Force• Provide Agency Climate Adaptation Plan by July 2012• Provide Fleet Management Plan by July 2012		



Sustainability, SLCM, Resiliency

Sustainability

Aims to maintain the world in balance

Strategic Life Cycle Management

Promotes sustainability and resilience at all stages of space system life cycle

Resiliency

Helps systems adapt to shocks in an imbalanced world

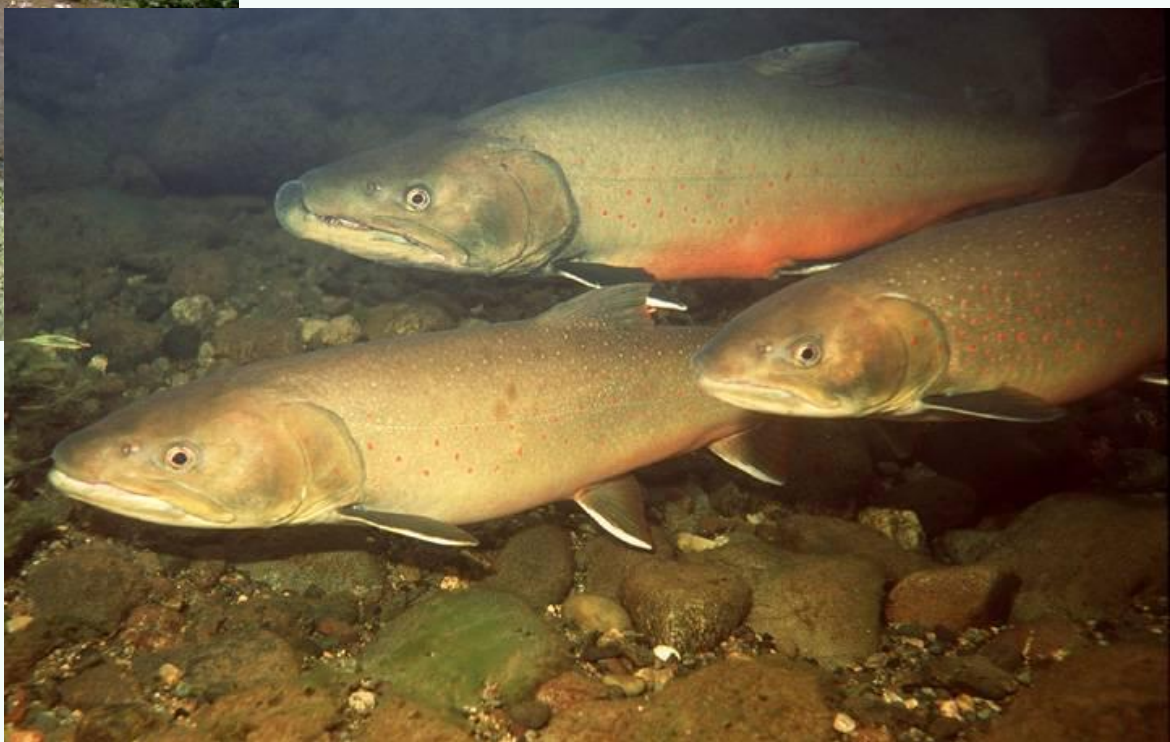


Sustainability and Resilience



Both Sustainability and Resiliency Must Be Managed

Life Cycle Management Ties the Two Together





Need for Resilience

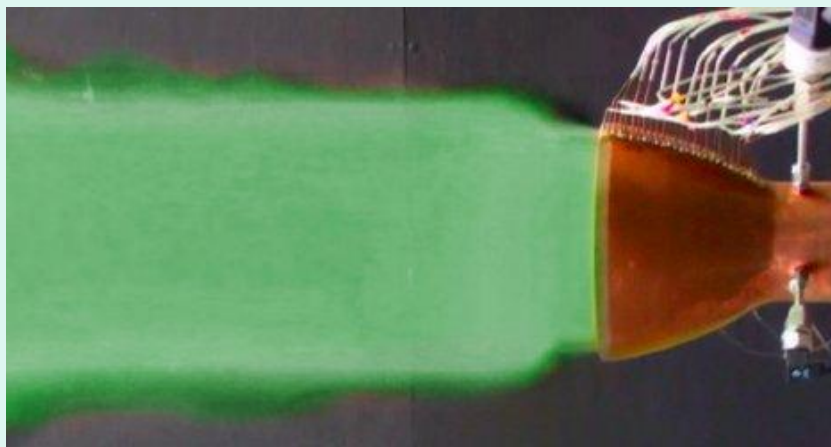




Strategic Life Cycle Management Purpose

SLCM Purpose Summary:

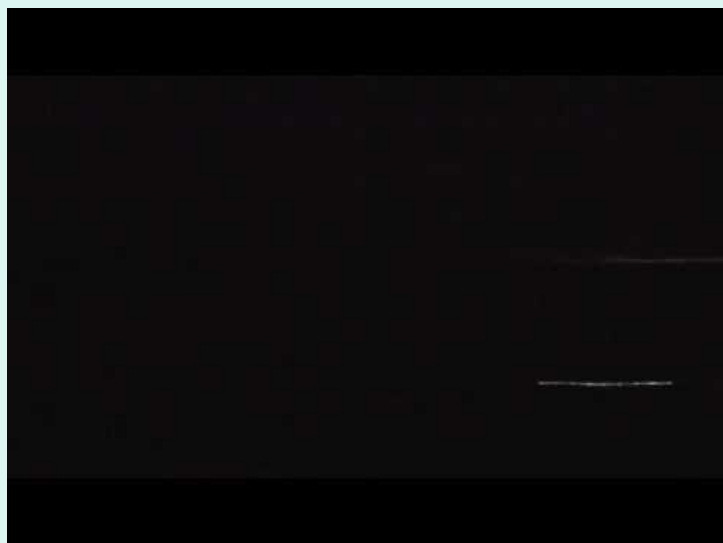
- Reduce spacecraft weight
- Reduce risk to mission
- Increase space system performance





Strategic Terrestrial Asset Assurance and Resilience (STAAR)

NASA will use Strategic Life Cycle Management to engineer resilient space systems, promote sustainability, and protect strategic terrestrial space system assets





Actions to Achieve STAAR

- International cooperation and partnerships
- Promote shared understanding space system materials and processes
- Bring people together; scientist, engineers, academics, students to explore means to achieve results



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Questions?

